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January 1988

# Railway Age

...for the new age of railways and rail transit

## Locomotives: A hard look at the options

## CSX: Making tracks for growth

## Passenger railcars: What's ahead for builders

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2

January 1988

# Railway Age

...for the new age of railways and rail transit

## 44 Passenger railcars: A fast track for builders

Supplying rolling stock for U. S. and Canadian rail passenger systems has burgeoned into a billion-dollar-a-year business. All signs point to continued growth, according to a *Railway Age* survey.

## Features

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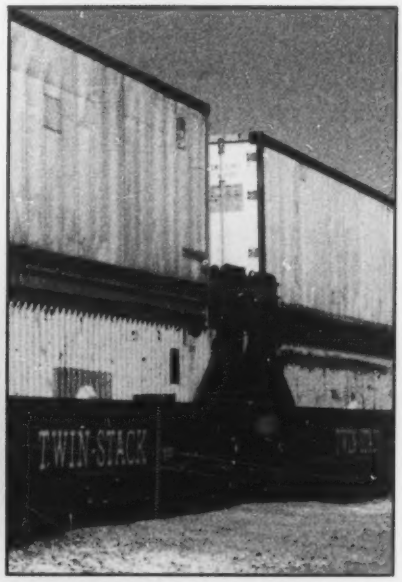
Contending that the U.S. motive power fleet "is obsolete and growing more so each day," ex-CMO John G. German offers pointers toward better utilization of existing locomotives and acquisition of new units.




### 33 CSX: Making tracks for growth

As it slims down to a system of some 15,000 miles, CSX is taking steps to insure that its infrastructure will remain one of America's finest. This year's capital budget for plant is $248 million.

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This is a regional railroad that has no pretensions to being anything else. It's dedicated to serving the interests of its state and shipper investors, and in the process is showing a modest profit.

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Published monthly by the Simmons-Boardman Publishing Corporation, 345 Hudson St., New York, N.Y. 10014 USPS 449-130. Vol. 189. No. 1

Subscription rates to all railroad, rail rapid transit employees and industrial traffic department employees in the U.S. possessions, Canada and Mexico: $12 one year, $22 two years; all other countries $35 one year. All other subscriptions in the U.S., Canada and Mexico: $30 one year; all other countries: $50 one year. All subscriptions payable in advance. Single copies $3 plus postage and handling, except special issues. Call toll free (800) 228-9670 Mon-Fri., 9a.m.-5p.m. to place order. In Nebraska call (402) 346-4300. Copyrighted 1987.

Address all subscriptions, change of address and correspondence concerning them to Subscription Dept., Railway Age, 345 Hudson St., New York, N.Y. 10014.

Printed at Hughes Printing Co., 34 North Crystal St., East Stroudsburg, PA. 18301. Second Class postage paid by Simmons-Boardman Publishing Corp., 345 Hudson St., New York, NY 10014 ISSN 0033-8826. POSTMASTER—SEND change of address forms to Simmons-Boardman, 345 Hudson St., New York, N.Y. 10014.

# Market Outlook

## Equipment

**Conrail:** Is increasing the capacity of 300 60-foot auto-parts boxcars by raising their roofs 21 inches. The work is being performed at the Hollidaysburg, Pa., shop at a cost of $6.5 million.

**Greater Orlando Aviation Authority:** Awarded two contracts to Westinghouse Electric for the supply of ten additional people mover vehicles. One contract calls for delivery of four cars in 1988 for expansion of existing service from the main terminal to two satellite terminals. Under another contract, Westinghouse will supply two three-car trains—plus a double guideway and control and power distribution systems—for service to a third satellite scheduled to go into operation in October 1989. The latter contract includes an option for a third people mover system to serve a new terminal now in the planning stage.

**PATH:** Took delivery in December of the last of 95 new commuter cars supplied by Kawasaki Rolling Stock (U.S.A.) Inc. in partnership with Nissho Iwai American Corp.

**Pullman Leasing Co.:** Purchased the entire tank car fleet and a portion of the covered hopper car fleet of Evans Transportation Co. for $58.6 million. The acquisition brought Pullman Leasing's total investment in railcars to almost $750 million. Altogether, Pullman Leasing added nearly 4,000 cars to its fleet in 1987, bringing the total to 29,000 cars.

**U.S. Navy, Facilities Engineering Command:** Awarded a contract to Chrome Locomotive for the remanufacture of four 80-ton diesel-electric units.

**VIA Rail Canada:** Awarded a $63-million (Canadian) contract to General Motors of Canada Ltd. for 26 FL4OPH-2 diesel-electric locomotives similar to 30 units acquired earlier from the London, Ont., plant of GM. The order is part of a $361-million capital improvement program for VIA Rail that was approved by the federal government last May. The new locomotives will be used in transcontinental service and in the Quebec City-Windsor, Ont., corridor. VIA Rail President and CEO Denis de Belleval said the order is "another significant step forward in the modernization of Canada's passenger rail system."

## Revenue freight carloadings

| Commodity | Dec. 19 week | Dec. 12 week | Dec. 5 week | Nov. 28 week | Nov. 21 week |
|---|---|---|---|---|---|
| Grain | 31,513 | 31,713 | 33,258 | 23,909 | 31,021 |
| Other farm products | 5,303 | 5,159 | 4,090 | 2,943 | 3,585 |
| Metallic ores | 15,814 | 16,347 | 17,130 | 16,153 | 18,779 |
| Coal | 122,750 | 129,399 | 123,512 | 101,461 | 127,333 |
| Crushed stone, gravel and sand | 12,446 | 14,217 | 14,369 | 10,194 | 15,036 |
| Nonmetallic minerals | 9,304 | 9,343 | 11,540 | 6,361 | 10,469 |
| Grain mill products | 10,962 | 11,480 | 11,694 | 9,600 | 11,247 |
| Food and kindred products | 10,947 | 11,469 | 11,610 | 9,121 | 11,869 |
| Primary forest products | 11,141 | 11,506 | 10,951 | 7,176 | 10,552 |
| Lumber and wood products except furniture | 7,724 | 7,882 | 7,834 | 6,007 | 7,960 |
| Pulp, paper and allied products | 11,771 | 11,710 | 12,887 | 11,264 | 11,415 |
| Chemicals and allied products | 26,936 | 27,746 | 29,370 | 21,707 | 26,554 |
| Petroleum products | 4,576 | 5,175 | 4,852 | 3,930 | 4,810 |
| Stone, clay and glass products | 8,959 | 10,420 | 10,227 | 8,177 | 10,235 |
| Coke | 5,715 | 5,624 | 6,080 | 5,251 | 5,573 |
| Metals and products | 9,837 | 9,888 | 10,426 | 8,904 | 9,746 |
| Motor vehicles and equipment | 19,798 | 21,620 | 21,571 | 14,172 | 21,107 |
| Waste and scrap materials | 9,250 | 9,992 | 90,875 | 7,384 | 10,223 |
| Forwarder and shipper assn. traffic | 2,472 | 2,584 | 2,567 | 2,185 | 2,400 |
| All other carloads | 81,830 | 82,133 | 80,954 | 65,927 | 83,850 |
| LCL traffic | — | — | — | — | — |
| **Total Cars Loaded** | **419,848** | **435,407** | **434,797** | **341,846** | **433,764** |
| % change from previous year | (6.8) | 9.8 | 10.3 | 9.5 | 5.6 |
| **Estimated revenue ton-miles (billions)** | 18.8 | 19.6 | 19.7 | 15.5 | 19.4 |
| % change from previous year | 7.9 | 10.9 | 11.3 | 10.3 | 5.5 |

| Total: | 1987 | 1986 | % change |
|---|---|---|---|
| 51 weeks | 928.0 | 863.4 | 7.5 |

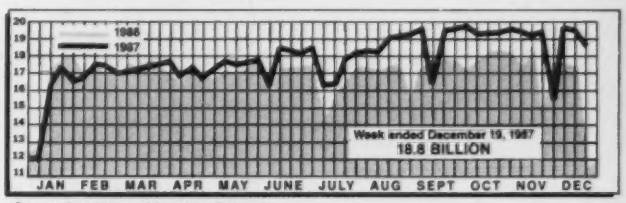
## Piggyback loadings

| | Dec. 12 week | Dec. 5 week | Nov. 28 week | Nov. 21 week |
|---|---|---|---|---|
| Trailers/containers | 106,808 | 103,532 | 84,608 | 107,649 |

| Cumulative total, 50 weeks | | % change from 1986 |
|---|---|---|
| Trailers/containers | 4,966,142 | 2.8 |

## Rail freight traffic trends

Billion ton-miles (Estimated)

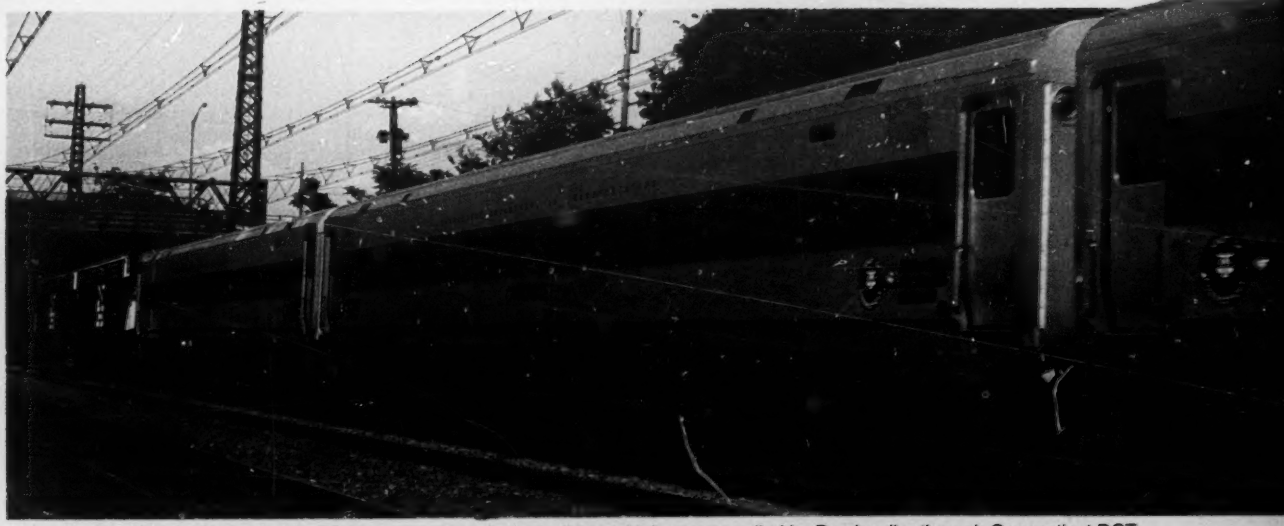



Source: Association of American Railroads

## Facilities

**Metro-North Commuter Railroad:** Awarded a contract to De Leuw, Cather & Co. to provide design and shop drawing review of a new m/w equipment repair facility at North White Plains Yard. The new facility will replace an 80-year-old wooden and masonry structure. All track maintenance equipment used on the Hudson, Harlem and New Haven lines is maintained and repaired at North White Plains, as is work train equipment.

**New Orleans Regional Transit Authority:** Awarded a $3.2-million contract to Parsons Brinckerhoff Quade & Douglas to serve as construction managers for the $44-million renovation of the St. Charles streetcar line.



Metro-North will be in the market for 60 commuter cars similar to these which were supplied by Bombardier through Connecticut DOT.

# Passenger cars: A fast track for builders

*A continuing strong market for passenger railcars reflects the continuing comeback of train travel within and between cities. The big prize coming up: New York's $2-billion ac-car fleet.*

By LUTHER S. MILLER,
Editor

A *Railway Age* survey reveals that passenger-train operators in the U.S. and Canada spent more than $1 billion last year for new railcars, about twice the amount that railroads and other buyers spent for new freight rolling stock. That's a dramatic reversal of the pattern of just a couple of decades ago, when the freight car was king of the marketplace and so few passenger railcars were being bought that the American Railway Car Institute stopped counting them.

The tables and charts on the facing page summarize the results of our latest survey, which included all rail passenger agencies in the U.S. and Canada—those providing intercity, commuter, rapid transit, and light rail service.

The figures are impressive, reflecting the continuing renaissance of a mode of passenger transportation that not long ago appeared doomed to museum status: 1,040 new cars delivered in 1987, at a cost of around $1 million apiece, and a backlog of 946 new cars on order and undelivered as of Jan. 1, 1988. Orders are already in sight for more than 360 additional cars in 1988 and for up to 1,650 more in the following five years.

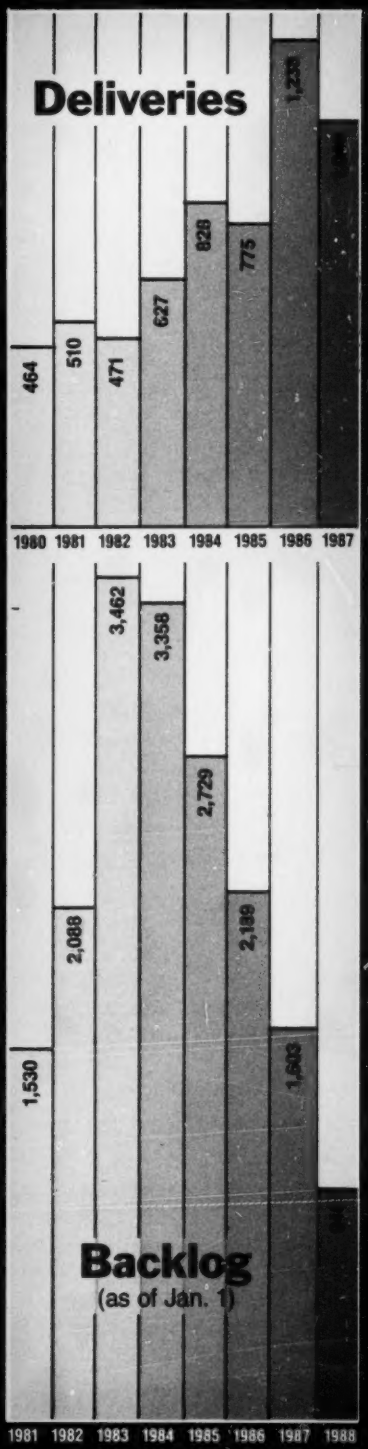
And these projections are conservative. They do not include, for example, "substantial" orders for new Viewliner cars that Amtrak hopes to place starting in 1990. Amtrak is reluctant to estimate the size of its new fleet because funding problems must still be resolved, although President W. Graham Claytor, Jr., has indicated that orders will probably be placed in batches of 30 to 50 (*RA*, Dec. 1987, p. 30). Other potential purchases, too "iffy" right now to enter the official projections, could also be showing up on the order books: trainsets for several high-speed intercity corridors that are under study, intercity cars for 401-b services that some states want to initiate in cooperation with Amtrak, and cars for numerous light rail systems that are in the early planning stages in such cities as Minneapolis, Denver, and Norfolk, Va.

Privately built and operated high speed intercity systems hold out the prospect of a particularly rich market. There is some skepticism among transportation people that developers will be able to raise the necessary billions of dollars in the private money markets. But two of the world's biggest passenger-car builders, Bombardier of Canada and Alsthom of France, have sufficient faith in U.S. high speed prospects that they have entered into a joint venture to bring a French TGV system to North America for testing. U.S. TGV President Robert W. Blanchette said the joint venture agreement "will bring significant benefits to our efforts in Florida and other corridors around the U.S." (The State of Florida proposes to award a franchise to a private developer to build a high speed line connecting Miami, Orlando, and Tampa.) Alsthom has supplied the French National Railways with 104 TGV trains for 168-mph service on the Paris-Lyon-Southeast France line and is building 95 trains for 185-mph service on the TGV Atlantique line, which is scheduled to open in 1989.

Amtrak told *Railway Age* late in December that it was involved in "conversations" about the possible testing of the TGV in the Northeast Corridor. Amtrak had firmer plans for testing some other European equipment: On Dec. 21, Amtrak announced that in the spring of 1988 it would begin testing Talgo tilt-body cars in the Boston-New York corridor. The cars will be supplied by Renfe-Talgo, a Madrid-based joint venture of Spanish National Railways and the manufacturer.

● **The rehab market.** A burgeoning rehabilitation market further brightens the picture. New Jersey Transit Rail Operations (NJTRO) will be seeking bids this spring for rehabilitation of its fleet of 230 12-year-old Arrow III cars, at an estimated cost of

# Passenger-car market at a glance




## These cars were delivered in 1987:

| Purchaser | No. of cars | Type | Builder |
|---|---|---|---|
| Amtrak | 2 | Intercity prototypes | Budd, Amtrak |
| Atlanta | 36 | Rapid transit | Hitachi, C. Itoh |
| Baltimore (MARC) | 13 | Commuter | Nippon Sharyo, Sumitomo |
| Boston | 40 | Commuter | Bombardier |
| | 34 | Commuter | Messerschmitt-Bolkow-Blohm |
| | 9 | Light rail | Kinki Sharyo |
| | 6 | Rapid transit | UTDC, Inc. |
| Chicago (CTA) | 36 | Rapid transit | Transit America |
| NJ Transit Rail Operations | 27 | Commuter | Bombardier |
| New York (Metro-North) | 54 | Commuter | Mitsui, Tokyu Car |
| | 28 | Commuter | Bombardier |
| New York (NYCTA) | 335 | Rapid transit | Bombardier |
| | 184 | Rapid transit | Westinghouse/Amrail |
| PATH (PA of NY/NJ) | 69 | Rapid transit | Nissho Iwai, Kawasaki |
| Philadelphia (SEPTA) | 35 | Rapid transit | Bombardier |
| Pittsburgh (PAT) | 1 | Light rail | Siemens-Duewag |
| Sacramento | 9 | Light rail | Siemens-Duewag |
| San Francisco (BART) | 5 | Rapid transit | Soferval |
| San Francisco (CALTRANS) | 2 | Commuter | Nippon Sharyo, Sumitomo |
| Santa Clara County | 32 | Light rail | UTDC, Inc. |
| Toronto (TTC) | 26 | Rapid transit | UTDC Group |
| | 5 | Light rail | UTDC Group |
| Washington (WMATA) | 52 | Rapid transit | Breda |
| **Total** | **1,040** | | |

## Work goes forward on this undelivered backlog:

| Purchaser | No. of cars | Type | Builder |
|---|---|---|---|
| Alaska Railroad | 8 | Intercity | Daewoo |
| Amtrak | 1 | Intercity prototype | Budd, Amtrak |
| Boston | 33 | Commuter | Messerschmitt-Bolkow-Blohm |
| | 41 | Light rail | Kinki Sharyo |
| | 52 | Rapid transit | UTDC, Inc. |
| Los Angeles (LACTC) | 54 | Light rail | Nippon Sharyo |
| NJ Transit Rail Operations | 13 | Commuter | Bombardier |
| New York (NYCTA) | 100 | Rapid transit | Westinghouse/Amrail |
| | 200 | Rapid transit | Kawasaki |
| Philadelphia (SEPTA) | 26 | Light rail | Asea Traction-Amtrak |
| San Diego (MTDB) | 20 | Light rail | Siemens-Duewag |
| San Francisco (BART) | 145 | Rapid transit | Soferval |
| Santa Clara County | 18 | Light rail | UTDC, Inc. |
| Toronto (GO Transit) | 63 | Commuter | UTDC, Inc. |
| Toronto (TTC) | 46 | Light rail | UTDC Group |
| | 94 | Rapid transit | UTDC Group |
| Washington (WMATA) | 32 | Rapid transit | Breda |
| **Total** | **946** | | |

## Orders likely to develop in 1988:

| Purchaser | No. of cars | Type |
|---|---|---|
| Baltimore | 35-40 | Light rail |
| Boston | 95-115 | Commuter |
| Dallas (DART) | 12 | Light rail |
| Los Angeles (SCRTD) | 30 | Rapid transit |
| Montreal | 24 | Commuter |
| NJ Transit Rail Operations | 40 | Commuter |
| New York (LIRR) | 12 | Commuter |
| New York (NYCTA) | 44 | Rapid transit |
| Sacramento | 6 | Light rail |
| Toronto (GO Transit) | 60 | Commuter |
| **Total** | **363-378** | |

## The five year (1989-1993) outlook:

| Purchaser | No. of cars | Type |
|---|---|---|
| Baltimore | 40 | Light rail |
| Baltimore (MARC) | 30 | Commuter |
| Boston | 100 | Rapid Transit |
| Buffalo (NFTA) | 6 | Lightrail |
| Calgary | 14 | Light rail |
| Chicago (CTA) | 280-356 | Rapid transit |
| Chicago (METRA) | 116 | Commuter |
| Dallas (DART) | 12 | Light rail |
| Los Angeles (LACTC) | 30 | Light rail |
| Los Angeles (SCRTD) | 34-42 | Rapid transit |
| NJ Transit Rail Operations | 90-110 | Commuter |
| New York (LIRR) | 46 | Commuter |
| New York (Metro-North) | 60 | Commuter |
| New York (NYCTA) | 400* | Rapid transit |
| PATH (PA of NY/NJ) | 29 | Rapid transit |
| Portland (Tri-Met) | 5-10 | Light rail |
| Sacramento | 12-25 | Light rail |
| San Diego (MTDB) | 15-20 | Light rail |
| San Francisco (CALTRANS) | 13 | Commuter |
| San Francisco (MUNI) | 24 | Light rail |
| St. Louis | 31 | Light rail |
| Toronto (GO Transit) | 42-60 | Commuter |
| Toronto (TTC) | 22-58 | Rapid transit |
| Vancouver (BC Transit) | 10-20 | Light rail |
| **Total** | **1461-1652** | |

* Annual 200 car procurements beginning in 1992.

New York Rail Car is rebuilding 248 rapid transit cars for PATH at a cost of $450,000 each, four times their original cost.

$110 million. The New York City Transit Authority's continuing rebuild program, costing around $375,000 a car, will see 200 R-32s and more than 100 R-46s go out for bid. The Chicago Transit Authority is expected to award a contract for modernization of 144 2200-series Budd cars. The Connecticut DOT has 13 Budd SPV-2000 self-propelled cars on its immediate rebuild roster.

Meanwhile, work continues on substantial rebuild orders already placed. New York Rail Car is winding up one of the biggest and costliest—the rehabilitation of 248 PATH (Port Authority Trans-Hudson Corp.) rapid transit cars at $450,000 each, around four times their original cost. The Southeastern Pennsylvania Transportation Authority (SEPTA) is rebuilding 310 Silverliners. Sumirail Corp. is rebuilding 200 NYCTA cars.

• **Ac: The wave of the future.** The big news on the technological front is the mounting interest on the part of passenger-train operators in switching from dc to ac power, thus eliminating the brushes and commutators that now account for about two-thirds of all traction motor maintenance and failure costs. The technology has been developed and refined in Europe and Asia, where about 500 ac traction cars are operating. Now the U.S. is climbing on the bandwagon.

There were several major ac developments in 1987. New York's Metro-North Commuter Railroad awarded a $43-million contract to BBC Brown Boveri (now part of Asea Brown Boveri) to rebuild ten FL-9 dual-mode (diesel and electric) locomotives and convert them to ac traction. Amtrak put together its own ac locomotive at Beech Grove, Ind., from the shell of a wreck-damaged F40, using Brown Boveri equipment, and then persuaded the Electro-Motive Division of General Motors to install Siemens ac traction equipment on two of the 11 new FL40s EMD is building for the railroad. Amtrak will test the Asea Brown Boveri and Siemens systems against each other, and Amtrak President Claytor anticipates that the next major locomotive acquisition—probably in the early 1990s—will call for ac traction.

Meanwhile, NJTRO said it would specify ac—at a total cost of around $20 million—for 130 of the Arrow III cars that will be modernized (the other 100 cars in the Arrow III fleet operate as part of married pairs). SEPTA awarded a $44-million contract to an Asea Traction-Amtrak consortium to supply 26 ac-equipped cars for the 13.7-mile Norristown line, which is now being rehabilitated. And late in 1987 the New York City Transit Authority put into motion a plan which it hopes will culiminate in delivery of a 1,500-car fleet of ac cars during the decade of the '90s.

• **A $2-billion sweepstakes.** For two and a half years, NYCTA has been testing two subway cars equipped with the Garrett/Stromberg ac propulsion system. Engineers have carefully monitored performance data—acceleration, deceleration, speed signal compatability, power regeneration.

The results so far have been impressive—so impressive that NYCTA has invited carbuilders and suppliers around the world to participate in constructing up to four prototype ac trains that will be competitively tested for a year. NYCTA told the builders and suppliers that they would be expected to share the $20-million per train cost, and emphasized that "only companies that enter the competition and pass the testing period will be permitted to bid on future car orders."

The prize for the winner—or winners—will be production orders for around $2 billion worth of cars beginning in 1990 and continuing at the rate of 200 cars a year. First deliveries are to be made in 1994.

"The TA would like to incorporate advanced technology, which offers high potential for increased fleet reliability and reduced operating and maintenance costs, in future subway car purchases," said NYCTA President David L. Gunn. "However, before these cars can be purchased they will be required to undergo a rigid pilot test and qualification effort to prove that each technical innovation functions in the New York City subway environment."

Gunn said one major goal will be to reduce the truck weight by 10-20%. Gunn also wants wider seats, brighter lights, staggered doors to facilitate entering and exiting, high-tech door controls equipped with "no-motion detectors" to prevent unexpected opening, public-address systems that make automatic announcements, passenger-to-crew intercoms, electronic destination signs, and cabs that can be converted so that they may be operated by a single operator.

NYCTA engineers expect the switch to ac traction to save around $8,500 per year per car—$5,000 in reduced maintenance and $3,500 in reduced consumption of electricity, since the new cars will require about 30% less energy to run than current models.

• **The city-by-city picture.** While carbuilders will continue to find their biggest single chunk of business in New York, which accounts for 10% of the world market in subway equipment, business prospects are also bright elsewhere.

Some projections:

**Baltimore**—The Mass Transit Administration of Maryland is looking at the Baltimore & Annapolis as a light rail route and hopes to order 35 to 40 LRVs in 1988 or soon thereafter. Maryland also expects to purchase 30 new cars for MARC commuter service.

**Boston**—The Massachusetts Bay Transportation Authority plans to order 50 to 70 double-deck commuter coaches and 45 single level coaches in 1988; the five-year outlook calls for acquisition of 100 rapid transit cars.

**Chicago**—Metra commuter railroads have a five-year plan for acquiring 116 additional bi-level coaches—102 trailers and 14 cab cars. Chicago Transit Authority plans to buy 280 to 356 new rapid transit cars over the next five years.

**Dallas**—Dallas Area Rapid Transit will need 210 light rail cars for its 92-mile system. DART hopes to order an initial 12 cars

in 1988 (for delivery in 1993), with incremental orders to follow in 1993, 1994, and 1996.

**Los Angeles**—The Southern California Rapid Transit District anticipates placing an order in 1988 for 30 rapid transit cars, to be followed by orders for up to 42 additional cars. The Los Angeles County Transportation Commission, which already has 54 LRVs on order from Nippon-Sharyo, will need 30 more in the near future.

**Montreal**—The Montreal Community Metro System plans to place an order this year for 24 commuter cars.

**New York**—Metro-North's five-year plan calls for up to 60 new M-4 electric commuter cars; the Long Island will be getting up to 46 new M-3s.

**New Jersey**—New Jersey Transit Rail Operations, which has 13 push-pull coaches on order from Bombardier, will order an additional 40 in 1988; the five-year plan calls for 40 to 50 standard coaches and 50 to 60 bi-levels.

**Portland**—Tri-Met sees a need for 5 to 10 new light rail cars.

**St. Louis**—The East-West Gateway Coordinating Council, which hopes to start building its Metro Link light rail system in about a year, estimates it will need 31 cars.

**Sacramento**—The Sacramento Regional Transit District, which started service last year with nine Siemens-Duewag LRVs, expects to order six more this year and 12 to 25 over the next five years.

**San Diego**—The Metropolitan Transit Development Board has 20 LRVs on order from Siemens-Duewag and will need an additional 15 to 20 as its trolley system continues to expand.

**San Jose**—The Santa Clara County Transportation Agency, which began revenue service last month with 50 articulated LRVs supplied by UTDC, expects to purchase 20 more similar cars.

**San Francisco**—Caltrans will be in the market for up to 13 gallery cars of the type delivered last year by Sumitomo-Nippon Sharyo. The San Francisco Municipal Railway has a five-year plan for acquisition of 24 LRVs.

**Toronto**—GO Transit, which has 63 bi-levels on order from the Can-Car plant of UTDC, will order 60 more cars of the same type this year and 42 to 60 more over the next five years. The Toronto Transit Commission, which has 94 rapid transit cars and 46 LRVs on order from UTDC, expects to buy 22 to 58 additional rapid transit cars over the next five years.

**Vancouver**—BC Transit has long-range plans for an additional 10 to 20 light rail cars. ■

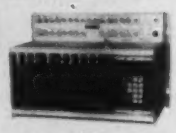
# Products Report

## Drop-end dump car

DIFCO, Inc. is offering the "Ditcher Train," a modified side dump car incorporating a drop-end design. The design permits an excavator to drive through a train of these cars, clean ditches, and close the end doors as the cars are filled. More productive track time is said to be achieved by requiring fewer trips to the dump site.

**Write in 970 on Reader Service Card**

## Crossing predictor signal



Safetran's Model 3000 Micro Grade Crossing Predictor is a microprocessor-controlled system that provides a constant warning time at crossings regardless of the speed of the approaching train, a system that is capable of handling double-track operations with installation of a single unit. The Model 3000 has a removable command module that allows programming and updating to be done on-site. The basic system includes a single transceiver and island module; the unit can operate two undirectional or two bidirectional approaches by adding a second identical transceiver module. One or two DAX prediction modules can be added to provide up to four independent auxiliary prediction times; in addition, an optional recorder module is available for remote diagnostics and additional train move and crossing operation data.

**Write in 971 on Reader Service Card**

## Wear-resistant coating

CEMKOTE, a nickel-cobalt-boron metal finish, is designed for use where base metal material is exposed to wear due to abrasion, adhesion, surface fatigue, erosion, fretting and corrosion. According to Cemkote Inc., a division of McComas Industries, Inc., it has a hardness rating of 850 Knoop as plated or 1240 Knoop heat-treated. For adhesion, the finish has been tested at up to 380,000 psi on steel; wear tests show it as providing up to 30 times the life of an unplated component and up to 15 times the life of hard chrome; its coefficient of friction is rated at .008 static as plated.

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*N. A. Oley, VP Operations*

*Mark Arsenault, Mgr. Billing*

*Our 50' TOFC Conversions have been approved by the AAR and are in interchange service.

*Our 4427 cu. ft. hopper car to 3150 cu. ft. cement car conversion models are currently in test service on several major railroads.

*Both models were developed for XTRA, Inc.

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